European Physical Society Response to the ERA Framework Public Consultation: Areas of untapped potential for the development of the European Research Area

29 November 2011

European Physical Society

more than ideas

European Physical Society
Response to the ERA Framework Public Consultation: Areas of untapped potential for the development of the European Research Area

The European Physical Society is a not for profit association created in 1968 for the promotion of physics in Europe. It provides a forum for the discussion of issues and a platform for developing and implementing activities that strengthen scientific excellence in physics research. The EPS pilots projects in areas such as physics education, communication and outreach, career development of researchers, publications and European integration. The 41 EPS Member Societies represent over 110,000 physicists. EPS membership also includes 3000 individual physicists and 50 research institutions in Europe.

1. General Considerations

Dialogue

A European vision for science is necessary, with clear political leadership and accountability. Developing a European vision for science implies increased cooperation of all of the stakeholders, and should include forward-looking activities, leading to the design of policies, and their implementation as well as their evaluation.

The EPS supports an approach that actively involves European learned societies and scientists in the development and implementation of EU research and innovation policies. The input of these particular stakeholders is needed to gain the insight from the research community to ensure that responses are adapted to their needs. Learned societies have also developed much expertise, particularly in areas relating to education, publications, networking and European integration. The European Research Council is an example of the effective collaboration between the scientists in all fields and the EU in developing programmes that enhance excellent scientific research in Europe.

The EU should consider policies and programmes that increase the ability of learned societies to actively contribute to the policy development of the ERA, including for example organisational grants, support for policy workshops, studies and other policy oriented activities.

Scientific Excellence

Too often, policy makers separate fundamental and applied research. This distinction is based on the approach in which basic research leads to applied research, then to inventions and finally to innovation. The research and innovation process is more complex, where informal flows of information and networking play an important role, as do the subtle interactions between societal development and science policy. The benefits of scientific research are social, cultural and economic. Two-way technology transfer is also a natural achievement of scientific research. However, notions of "return on investment" should not be applied to frontier research. EU policy should avoid this distinction, and continue to concentrate on research excellence as the sole condition to create an environment in Europe that attracts the world's best researchers, where scientists are encouraged to take initiatives, including those with an element of risk, at the frontiers of scientific research.

2. Researchers

Europe's future prosperity and global competitiveness depend on sustaining and enhancing excellence in research. Researchers are attracted to facilities where they can work with well-respected colleagues, with state-of-the-art equipment, and where they are involved in cutting-edge research. EU policies need to attract the best scientists, encourage exchange among scientists in Europe, and motivate students to pursue careers in research. Barriers in achieving these goals include complex visa and migration regulations and the lack of portability in social security benefits, including pension rights.

A knowledge-based society and economy needs highly qualified scientists. This relies on excellent science education and training in all European countries. EU and national policy-makers in all European countries must place science education and training as a priority in educational and research policies.

Particular emphasis should be given to addressing issues related to early stage researchers. For example, doctoral level students in physics are actively engaged in research. However, their status is often not recognised, for example, there is no clear contractual relationship, no social security benefits, etc. Recognising the PhD as the first step in a research career is necessary.

A lack of information in career opportunities and transparency regarding career stability and development make research careers unattractive. There are EU initiatives that address some of these issues, in particular the European Charter for Researchers and Code of Conduct. These constitute good starting points for actions increasing the interest to pursue a career in research.

Gender equality issues exist. Cultural bias, working conditions, career development, etc., contribute to low representation of women in scientific careers. EU policies and programmes are necessary in this area (e.g. role model promotion, child care facilities, awards and incentives for good practice…) to encourage a more equitable gender balance.

In this respect, we would like to draw to the attention of the EU the Juno Project initiated by the Institute of Physics (UK): http://www.iop.org/policy/diversity/initiatives/juno/index.html. This project addresses issues pertaining to the under-representation of women in science and innovation by encouraging better practice for both men and women. The EU could consider policies whereby applicant university departments are requested to demonstrate their commitment towards developing an equitable working culture in which all students and staff, men and women, can achieve their full potential. The availability for more flexible support, especially for early-career researchers to allow them to build their career taking into account restrictions that are sometimes referred to as the 'two-body problem' should also be considered. It is often women who compromise in such situations. It could be helpful to allow some funding within grants to be used flexibly to support caring responsibilities. In strengthening the role of women, initially, the barriers need to be recognised and mitigated.

3. Cross-border operation of researchers

Scientific research in Europe is excellent. Nonetheless, there are large disparities in Europe in research funding, salaries, working conditions, infrastructure, etc., which is leading to fragmentation in research capability or a two-tier Europe. European harmonisation depends on reducing gaps between weak and strong nations in Europe, and a strong science base in all EU countries is essential to enable this. Not only should the EU encourage Member States to support scientific research nationally, Member States should be subject to a commitment on expenditure, creating the stable conditions necessary for effective scientific research and to support the development of the European Research Area. A strong science base requires a long-term perspective, and not simply short-term goals.

Member States and the EU should continue to support networking tools for cross border cooperation. COST networks and ESF EUROCORE schemes are good examples of science driven networking initiatives. EU joint financing initiatives should also be used to support national research and European harmonisation.

4. Research Infrastructures

Research infrastructures are good examples of scientific collaboration producing scientific excellence. It should be noted that scientists have been essential in contributing to the success of research infrastructures, not only through research, but also through active participation in running the facilities and in establishing priorities. Research infrastructures are also important in terms of education, communication and outreach, technology development and transfer, etc.

The EU can play various roles with respect to research infrastructures. Firstly, the ESFRI roadmaps are well received by the research community and should be continued. Their updates need to include infrastructures in all fields of science (e.g. mathematics, chemistry, etc.). Secondly, the EU could implement policies facilitating access to funding for the construction of research infrastructures, through for example help in consortia building. Thirdly, The EU can also be a key player in determining the sites of future research infrastructures, taking into account the developing regions in Europe addressing fragmentation issues. Finally, the EU could encourage the coordination of national activities and projects to avoid unnecessary duplication of research infrastructures.

5. Knowledge Circulation - Knowledge Transfer - Open Access to publications and data

Knowledge Transfer

Knowledge transfer among universities, industry and public research organisation should be enhanced. The EPS encourages the EU to promote policies and initiatives that spur research and development expenditure from the private sector. These can include tax incentives for research, simplified mechanisms allowing mobility and joint research between academic researchers and those in the private sector.

The EU should be inspired by initiatives in Member States leading to environments that encourage exchanges between industry and university. In France, for example, “Poles de Compétitivité” stimulates clustering and networking by bringing together private and public research sectors.

Special attention should be paid to developing science-related careers in the areas of management, knowledge transfer and communications. To accomplish this, training, funding and evaluation schemes for these professionals need to be developed, both at the European and institutional levels.

Publication of scholarly works

In Europe, learned society publishers have an important role in the dissemination and communication of scientific research. High quality scientific publications are an integral part of the scientific communication, evaluation and validation of research results, through the peer review process. The peer review process guarantees the quality of scientific publications. Scientific publishing is also important in career development of researchers.

The services relating to peer review, access, archiving, indexing and quality control have cost implications. Learned society publishers and research institutions are experimenting with many models that provide open access to scientific publications, including author pays, hybrid, institutional subscriptions, etc. The EU should analyse its policies carefully so that they do not jeopardise the financial stability or the quality of existing scientific publishing industry in Europe, nor impose rules that restrict the right of authors to publish in the journals of their choice.

Given the complexity and gravity of the issues involved, discussion among the various actors involved in scientific publishing in Europe is essential. The EU should take advantage of the expertise in scientific publishing that exists in the learned society publishers and create a forum where the issues can be discussed and solutions can be developed.

Publication of Data

The issues related to the publication of data resulting from scientific research include, among a many others, ownership, right of (first) use, the volume of information, identification, archiving, and funding for preservation. The EU needs to recognize that electronic scientific databases are a strategic resource and policies are needed to develop and maintain them.

Various initiatives in different fields have been developed, e.g. the online pre-print repository in physics - ArXiv; the public/private collaboration in mathematics - Zentralblatt-MATH, and the EMBL-EBI initiative to make bio-informatic data resources available online - ELIXR.
It is important to note that these are successful community driven initiatives, demonstrating that the scientific community is aware of the issues and has developed successful responses. The EU is encouraged to make use of the experience that exists in the scientific community, and to create a forum with all stakeholders, including the learned societies and research institutions to discuss issues and develop solutions.

6. International dimension of ERA

The EPS and the Association of Asia Pacific Physical Societies (AAPPS) have successfully organised two Asia-Europe Physics Summits. These summits bring together scientists, policy-makers and funding bodies to learn about cutting-edge science and discuss the potential for and barriers to effective cooperation in physics research between Asia and Europe. Researcher driven networks create the links necessary for successful collaboration in science. The EU is encouraged to develop policies and programmes that provide support for such initiatives that strengthen international collaboration between European-based researchers and their colleagues around the world.

7. Managing and monitoring the ERA partnership, cross-cutting issues and next steps

The EU is encouraged to continue its efforts to pursue the simplification of the application, reporting and control processes for EC grants. In order to help researchers, research institutions and private sector researchers gain access to EU funded research, calls for proposals should include key word descriptions, and clear explanations of the subject matter of the calls.

Issues and techniques in the management of science are largely different from other sectors. Networks of researchers for the exchange of best practices in research management should be encouraged. This is another science related career sector that should be further developed.

The European Physical Society
November 29, 2011